Improving Information Technology

New and innovative technologies are revolutionizing the way environmental data can be collected, stored, displayed, and disseminated. Over the past 10 years, OWOW has taken full advantage of the latest Internet and data management systems to enhance the delivery of information to our partners and to the public.

A Modernized Data Management System

STORET (short for "storage and retrieval") is EPA's largest computerized environmental data system (www.epa.gov/storet). It serves as a central repository for the nation's water quality, biological, and physical data and is used by state environmental agencies, EPA and other federal agencies, universities, private citizens, and many others. EPA also maintains the Legacy Data Center, or LDC, which contains historical water quality data dating back to the early part of the 20th century and collected up to the end of 1998. STORET contains data collected beginning in 1999, along with older data that has been properly documented and migrated from the LDC. STORET was completely modernized in the 1990s and transformed from a complex mainframe system to a flexible PC-based system designed to be used by professionals and volunteer organizations alike. The LDC and STORET have been Web-enabled, allowing anyone with a standard web browser to navigate both systems interactively or create files of water quality data that can be downloaded to a typical personal computer.

Geographic Information Systems

OWOW has worked cooperatively with the U.S. Geological Survey over the past decade in developing geographic information system (GIS) tools such as the Reach Files and the National Hydrography Dataset. These tools will allow important water quality and flow information from a variety of databases to be connected and consistently mapped. They will also improve communication to the public on water quality issues of concern, including which local waters are impaired, what the uses of those waters are, and what pollutants are impairing them.

The Reach Files are a series of national hydrologic databases that uniquely identify and interconnect the stream segments or "reaches" that compose the U.S. surface water drainage system. The three versions of the EPA Reach File that currently exist, known as RF1, RF2, and RF3, were created from increasingly detailed sets of digital hydrography data produced by the U.S. Geological Survey. OWOW enhanced these hydrography datasets by assigning a unique reach code to each stream segment, determining the upstream/downstream relationships of each reach, and, when possible, identifying the stream name for each reach.

Although these hydrography datasets can be used for some key analyses, most of the real power comes when other data is connected (or "reach indexed") to them. Under the new National Hydrology Dataset, one can map and display very localized stream information and overlay it with water quality information from other databases. These databases include the TMDL Tracking System, used by EPA to maintain information about state lists of impaired or polluted waters; the 305(b) Assessment Database, used by the states to maintain their surface water assessment results under section 305(b) of the Clean Water Act; and the Water Quality Standards Database, which contains information on the specific uses for which waterbodies are designated (such as swimming and fishing) by the states.

8-Digit Cataloging Units